CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 88-038

UPDATED WASTE DISCHARGE REQUIREMENTS FOR:

CITY OF PALO ALTO
CLASS III SOLID WASTE DISPOSAL SITE
PALO ALTO, SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board), finds that:

1. The Palo Alto Landfill is owned and operated by the City of Palo Alto (hereinafter referred to as the discharger). The discharger, by application dated December 1, 1987, as amended February 11, 1988, has applied for revision of Waste Discharge Requirements (WDR), pursuant to Title 23, Chapter 3, Subchapter 15 of the California Administrative Code (Subchapter 15), for the continued operation of the Palo Alto Class III Landfill in Palo Alto, Santa Clara County. The project site, as shown on Attachment A, which is incorporated herein and made a part of this Order, is located at the southwestern margin of San Francisco Bay, at the northeastern extremity of Embarcadero Road, adjacent to the Mayfield Slough.

2. The landfill is located on former salt marsh along the edge of San Francisco Bay and was operated as a refuse burn site during the early part of the century. In approximately 1954, refuse burning was discontinued, and the site began operation as a sanitary landfill. The landfill has been constructed primarily by placing waste materials on the ground surface, approximately at sea level. The only portion of the landfill known to have been excavated prior to landfilling is an area of approximately 3000 square feet in the northwestern corner of the site. Located here were three sludge drying ponds for the Palo Alto Regional Water Quality Control Plant, which were constructed by excavating to a depth of roughly ten feet. In the early 1960's the south end of Mayfield Slough was closed off and filled with refuse. Landfilling operations since 1974 have generally been over the older landfill deposits; this practice will continue until the site has reached capacity. The site receives both household refuse and construction debris.

3. The landfill currently occupies approximately 146 acres. Maximum landfill elevation was anticipated to be approximately 50 feet above MSL, providing an approximate remaining lifetime of 4 years. The discharger has proposed to increase the landfill height to 60 feet above MSL to provide an approximate remaining lifetime of 12 years, pursuant to design plans included in the Report of Waste Discharge (ROWD) submitted by the discharger on December 15, 1987. This report is hereby incorporated as a part of this Order. The remaining lifetime approximations are based on a disposal rate of approximately 300 tons of refuse and construction debris per day.

4. The Palo Alto Landfill is currently regulated by this Board's Order No. 79-116, adopted on September 18, 1979.

5. Approximately 6 acres on the southwest corner of the landfill are used for a composting operation. Trees and brush are routinely ground and added to the compost pile. This area is placed on old refuse fill and is irrigated in the summer months. A recycling center operated by the discharger is located on the landfill at the northwestern corner of the site.

6. Facilities directly adjacent to the landfill include the Palo Alto Regional Water Quality Control Plant and a 72" sewer line that runs along the western site boundary, inside the site control levee.

7. The landfill lies within the northern edge of the San Jose Plain, bounded by the Mayfield Slough on the east, Matadero Creek on the south, and a marsh area and former yacht harbor on the north. The landfill area was primarily low-lying flood plain until waste disposal commenced. Stream-deposited and Bay mud alluvial materials underlie the site and contiguous areas. Franciscan Formation bedrock underlies the alluvial materials beneath the site at depths exceeding 1,000 feet.

8. The site is located in a seismically active area approximately midway between the San Andreas and Hayward fault systems. The site lies approximately 8 miles east of the San Andreas fault, 11 miles southwest of the Hayward fault, and 20 miles west of the Calaveras fault. A fault is suspected to underlie the site at a depth of 1,000 feet. The discharger has indicated that there is no geologic evidence that this fault has offset sediments of Holocene age near the surface.

9. The landfill site is located adjacent to San Francisco Bay on part of the extensive Santa Clara Valley alluvial basin which is composed of unconsolidated Quaternary alluvium deposited by streams draining the surrounding mountain areas. These materials, ranging from Pleistocene to Holocene in age, are composed of clay, silt, sand, and gravel, laid down largely as part of a series of coalescing alluvial fans formed by streams. The succession of alluvial fan deposits is interspersed by marine clay deposits near the San Francisco Bay. Silty and sandy clays and bay mud predominate in the subsurface section, with randomly occurring sandy lenses and small channels.

10. Groundwater occurs within several feet of the ground surface in the vicinity of the landfill. The alluvial sediments contain groundwater at depths near the base of the landfill, and approximately 40 to 60 feet below grade. A deep aquifer is located from approximately 150 to 200 feet below grade.

11. Groundwater monitoring wells at the site monitor groundwater from a zone located approximately 40 to 60 feet below grade. Water quality data from these wells indicate high chloride concentrations and in two of the wells, the presence of organic solvents 1,1,1-trichloroethane (TCA), 1,1-dichloroethane (DCA), and 1,1-dichloroethene (DCE) in low concentrations. The source of these organic solvents has not been determined at this time.

12. Water quality in the deep aquifer is not monitored at the landfill; however, data from wells in the vicinity indicate that the water is of drinking water quality. This aquifer underlies most of the Santa Clara Valley and is a source of large well production.

13. The shallow groundwater (elevation MSL to approximately 40 below grade) found in the surficial alluvial deposits beneath and adjacent to the landfill recharges the surface waters of South San Francisco Bay and contiguous waters, and possibly the deeper groundwater aquifers. The beneficial uses of South San Francisco Bay and contiguous waters are as follows:

    a. Wildlife habitat
    b. Water contact recreation
    c. Non-contact water recreation
    d. Commercial and sport fishing
    e. Preservation of rare and endangered species
    f. Estuarine habitat
    g. Fish migration and spawning

    The present and potential beneficial uses of the deeper groundwater (below elevation 150 feet below MSL) are as follows:

    a. Domestic and municipal water supply
    b. Industrial process water supply
    c. Industrial service supply
    d. Agricultural supply

14. Ground water wells within a mile of the site include the following: a multiple-completed observation well installed by the Santa Clara Valley Water District (SCVWD) for potentiometric monitoring of the shallow and deep aquifer zones; the "Duck Club Well", an abandoned deep aquifer water supply well drilled in 1934 adjacent to the former City Yacht Harbor; a former monitoring well, I-6, of an abandoned SCVWD recharge project located just south of the landfill; and approximately 23 shallow domestic wells located approximately one mile south of the landfill. Total annual pumpage from the domestic wells is currently less than 4 acre-feet. This water is of drinking water quality and is used mostly for irrigation.

15. Article 5 of Subchapter 15 requires that the discharger institute a detection monitoring program designed to detect the presence of waste constituents in surface water or ground water outside of the waste management unit and in any unsaturated zone beneath and adjacent to the waste management unit.

16. Section 13273 of the California Water Code requires that the State Water Resources Control Board rank all solid waste disposal sites in California, and that a solid waste water quality assessment test (SWAT) be conducted for each site on or before the designated submittal date for each rank. The Palo Alto Landfill is in the first rank on the list and was required to submit a SWAT report by July 1, 1987.

17. In order to satisfy requirements of Article 5 of Subchapter 15 and Section 13273 of the California Water Code, the discharger submitted a proposed groundwater monitoring program.

18. The proposed groundwater monitoring program is not adequate for detection of wastes migrating from the site into surface or ground water, and does not include adequate measures for determination of chemical characteristics of the waste in the landfill. The discharger has not provided adequate data regarding groundwater occurrence or flow patterns at the landfill necessary to develop a Subchapter 15 water quality monitoring program.

19. Background water quality for ground waters beneath and adjacent to the site, for the purpose of establishing Water Quality Protection Standards (WQPS) pursuant to Section 2552 of Subchapter 15 have not been determined. Compliance with this Order will provide for the establishment of WQPS according to the requirements of Subchapter 15.

20. Surface runoff from the site discharges into the Bay through the abandoned Yacht Club Harbor and Mayfield Slough.

21. Because wastes have been placed at the landfill below the elevation of the shallow ground water in an area excavated up to ten or more feet below ground surface, the landfill does not meet the siting criteria for a Class III landfill as specified in Section 2530(c) of Subchapter 15. The landfill is an existing landfill and must be operated, according to Section 2530(c), to ensure that wastes will be a minimum of 5 feet above the highest anticipated elevation of the underlying groundwater.

22. All additional wastes disposed of at this site will be placed on top of wastes already in place at the site. Additionally, as an engineered alternative to the 5-foot separation siting criteria, the discharger has proposed to operate a leachate monitoring and collection system as an attempt to control and prevent the build-up of leachate within the existing fill area. The discharger will install leachate monitoring/ extraction wells throughout the existing fill area to provide control and prevent the build-up of leachate at the site. This system will be designed as a cost effective means to prevent the migration of leachate into the groundwater, and to protect the beneficial uses of the waters of the State. Technical reports submitted in compliance with this Order will provide data for an evaluation of the need for additional remedial action and identification of any adverse impacts on the waters of the State.

23. Since it would be extremely costly to remove the wastes from the existing landfill for relocation, or to provide a five foot separation between the wastes and the shallow groundwater at the site, the discharger has applied for an exception to the siting requirement of Section 2530(c) pursuant to Section 2510(b) of Subchapter 15, for the entire landfill. The Board finds that it is not feasible to meet the siting requirements of Section 2530(c) of Subchapter 15 for this site because it is economically infeasible to remove all the wastes already in place. The Board finds that compliance with the requirements of this Order will ensure the protection of the beneficial uses of the waters of the State.

24. A portion of the landfill has been filled to final design grade. Final cover has recently been placed over this portion of the landfill.

25. The discharger has not provided a quality control/quality assurance program for construction of the final cover over the landfill.

26. Section 2580(d) of Subchapter 15 requires closed waste management units to have at least two permanent surveyed monuments from which the location and elevation of the wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period. The closure plan included as part of the Report of Waste Discharge (ROWD), submitted December 15, 1987, does not provide a specific plan for establishment of these monuments.

27. Section 2580(f) of Subchapter 15 requires the discharger to establish an irrevocable closure fund to ensure that closure and post-closure maintenance work will be completed. The closure plan does not provide evidence of an irrevocable closure fund or other means to ensure closure and post-closure maintenance according to the closure plan.

28. The discharger has not provided an acceptable slope stability analysis that demonstrates, pursuant to Section 2595(f) of Subchapter 15, that the proposed slope design will be stable under static and pseudo-static conditions and that the design features of the landfill will not fail due to the maximum probable earthquake or because of liquefaction.

29. Section 2533(c) of Subchapter 15 requires that Class III landfills be designed, constructed, operated, and maintained to prevent inundation or wash-out due to floods with a 100-year return period. The discharger has not satisfactorily demonstrated that the site is protected from the 100-year flood, as data have not been presented to document that levees surrounding the site are adequately constructed for this purpose.

30. The discharger has not adequately shown that the site drainage system is designed to carry 100-year 24 hour precipitation flows from the site pursuant to Section 2595(e)(5) of Subchapter 15.

31. The Board adopted a revised Water Quality Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986 and this Order implements the water quality objectives stated in that plan.

32. This project constitutes a minor modification to land for the continued operation of an existing landfill, with changes to meet public health and safety standards, and is therefore categorically exempt from the provisions of the California Environmental Quality Control Act (CEQA) pursuant to Section 15301 of the Resources Agency Guidelines.

33. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge, and has provided them with an opportunity to submit their written views and recommendations.

34. The Board in a public meeting heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the City of Palo Alto, and any other persons that currently or in the future own this land or operate this facility, shall meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and shall also comply with the following:

A. PROHIBITIONS

1. The disposal of waste shall not create a pollution or nuisance as defined in Section 13050 (l) and (m) of the California Water Code.

2. Wastes shall not be placed in or allowed to contact ponded water from any source whatsoever.

3. Wastes shall not be disposed of in any position where they can be carried from the disposal site and discharged into waters of the State or of the United States.

4. Hazardous and designated wastes as defined in Sections 2521 and 2522 of Subchapter 15, and high moisture content wastes including sewage sludge, septic tank waste, restaurant grease, and wastes containing less than 50% solids, shall not be deposited or stored at this site.

5. The discharger, or any future owner or operator of this site, shall not cause the following conditions to exist in waters of the State at any place outside the waste management facility:

   a. Surface Waters

      1. Floating, suspended, or deposited macroscopic particulate matter or foam.

      2. Bottom deposits or aquatic growth.

      3. Alteration of temperature, turbidity, or apparent color beyond natural background levels.

      4. Visible, floating, suspended or deposited oil or other products of petroleum origin.

      5. Toxic or other deleterious substances to be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

   b. Ground Water

      1. The ground water shall not be degraded as a result of the waste disposal operations.

6. Leachate from wastes and ponded water containing leachate or in contact with refuse shall not be discharged to waters of the State or the United States.

B. SPECIFICATIONS

1. Water used during disposal operations shall be limited to a minimal amount necessary for dust control and fire suppression.

2. The site shall be protected from any washout or erosion of wastes or covering material and from inundation which could occur as a result of a 100 year 24 hour precipitation event, or as the result of flooding with a return frequency of 100 years.

3. Surface drainage from tributary areas, and internal site drainage from surface and subsurface sources, shall not contact or percolate through wastes during disposal operations or during the life of the site. Earthen drainage ditches constructed over refuse fill shall be underlain with a minimum 5-foot thickness of compacted earth fill. Surface drainage ditches shall be constructed to ensure that all rainwater is diverted off-site and does not contact wastes or leachate.

4. The discharger shall install and operate a leachate collection and removal system (LCRS) so as to minimize the build-up of leachate in the landfill. Measures shall be taken to ensure that leachate in the leachate collection system can flow freely into any collection sump. Measures shall also be taken to assure that the LCRS will remain operational throughout the closure/post-closure maintenance period of the landfill.

5. The leachate monitoring and control system shall be designed, maintained and operated to prevent the build-up of hydraulic head on the bottom of the landfill. This system shall be inspected weekly, and any accumulated fluid shall be removed.

6. The discharger shall ensure that the foundation of the site, the levees surrounding the site, the refuse fill, the structures which control leachate, surface drainage, erosion, and gas for this site are constructed and maintained to withstand conditions generated during the maximum probable earthquake.

7. The landfill shall be provided with interim cover. Interim cover at landfills is daily cover and intermediate cover as defined by the California Waste Management Board. Interim cover shall be designed and constructed to minimize percolation of precipitation through wastes.

8. A periodic load checking program, as outlined in the ROWD cited in Finding 3, shall be implemented to ensure that hazardous materials are not discharged at the landfill.

9. As portions of the landfill are closed, the exterior surfaces shall be graded to a minimum slope of three percent in order to promote lateral runoff of precipitation. In addition, all completed disposal areas shall be covered with a minimum of 4 feet of cover and meet other applicable requirements as described in Article 8 of Subchapter 15.

10. Pursuant to Section 2580(d) of Subchapter 15, the discharger shall provide two surveyed permanent monuments on or near the landfill from which the location and elevation of wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period. These monuments shall be installed by a licensed land surveyor or registered civil engineer.

11. The discharger shall establish an irrevocable closure fund, pursuant to Section 2580(f) of Subchapter 15, that will provide sufficient funds to properly close each area of the landfill and for the post-closure monitoring and maintenance of the site. For the purposes of planning the amount of this fund the discharger shall assume a post-closure period of at least 30 years. The discharger shall provide an evaluation of closure and post closure monitoring and maintenance costs.

12. The discharger shall operate the waste management unit so as not to cause a statistically significant difference to exist between water quality at the compliance points and the WQPS to be established within one year of adoption of this Order. The compliance points are identified as groundwater monitoring wells located along the perimeter of the landfill. The discharger shall establish WQPS according to the requirements of this Order and Article 5 of Subchapter 15. WQPS shall be established for, at a minimum, the following constituents:

    a. pH
    b. Specific Conductivity
    c. Chloride
    d. Total Organic Carbon
    e. Nitrate Nitrogen
    f. Total Kjeldahl Nitrogen
    g. Total Phenol
    h. Total Dissolved Solids
    i. Arsenic
    j. Total Chromium
    k. Copper
    l. Nickel
    m. Zinc
    n. Lead

13. Because hydrogeology and ground water flow patterns at the site have not been adequately defined by the discharger, a detection monitoring program pursuant to Article 5 of Subchapter 15 has not been approved for the site. The discharger shall provide any additional information and data necessary for development of a ground water monitoring program pursuant to Article 5 of Subchapter 15.

14. The discharger shall install any additional ground water and leachate monitoring devices required to fulfill the terms of any Self-Monitoring Program issued to the discharger in order that the Board may evaluate compliance with the conditions of this Order.

C. PROVISIONS

1. The discharger shall comply with all Prohibitions, Specifications, and Provisions of this Order, except for Specification B.2, B.4, and B.5, immediately upon adoption of this Order.

2. The discharger shall submit an amended slope stability analysis by October 1, 1988 that provides data and discussion to substantiate assumptions and conclusions made in the analysis submitted as part of the ROWD cited in Finding 23. If the stability analysis finds that the design of the landfill, including the proposed design height of 60 feet, is not adequate for any reason, this report shall include an amended design, acceptable to the Executive Officer, that provides a new design assuring slope stability.

3. The discharger shall submit a report by August 1, 1988 documenting compliance with Specification B.2 of this Order. This report shall include calculated runoff volumes, patterns, and peak stream discharges for the 100-year storm; data to substantiate the maximum water levels for stream flows or high tide; and verification that flood protection levees have been constructed to withstand washout from the 100-year flood. If it cannot be demonstrated that flood protection levees are constructed to withstand washout from the 100-year flood, the report shall include a time schedule for achieving compliance no later than January 1, 1992.

4. The discharger shall submit, by May 1, 1988, a report documenting that the closed portion of the landfill has been closed in accordance with the document cited in Finding 23.

5. The discharger shall submit, by September 1, 1988, proposed locations, construction specifications and sampling protocol for leachate wells to be installed at the landfill. These wells shall be designed such that they can be used to pump leachate from the landfill, and shall be in sufficient numbers and at appropriate locations for acquiring the data necessary for the design of an LCRS for the site. This submittal shall include a time schedule for installation and sampling of the leachate wells.

6. The discharger shall submit, by February 1, 1989, an evaluation of leachate build-up within all portions of the landfill, and a proposed leachate management plan. This plan should evaluate the quantity of leachate produced, the storage of the leachate, and the ultimate disposal of the leachate. This management plan should also provide for an annual evaluation of the leachate generated at the site. If recirculation of the leachate is to be considered, the discharger must demonstrate that the quantity of leachate being recirculated will not exceed a solid to liquid ratio of at least 5:1 using a moisture content of the solid waste of at least 30%. The leachate management plan shall satisfy Section 2510 for exemption from Section 2530(c) of Subchapter 15, be subject to approval by the Executive Officer, and be implemented no later than July 1, 1989.

7. The discharger shall submit, by June 15, 1988, a revised proposal for groundwater monitoring at the site. This proposal shall be

based on data acquired via a soil boring program at the site designed to characterize the subsurface lithology.

8. The discharger shall submit, by October 1, 1988, a report which provides analytical data acquired through implementation of a revised groundwater monitoring program. This report shall provide an assessment, with sufficient supporting data, to determine whether leachate is leaking from the landfill.

9. The discharger shall submit, by October 1, 1989, a report on the groundwater quality at the site that proposes Water Quality Protection Standards for the constituents listed in Specification B.12 of this Order according to the requirements of Article 5 of Subchapter 15. If it is determined that the statistical comparison requirements of Article 5 are infeasible the report should include a proposal, pursuant to Section 2510(b) of Subchapter 15, for an alternative comparison procedure.

10. The discharger shall submit, within 90 days after the closure of any portion of the landfill, a closure certification report that documents that the area has been closed according to the requirements of this Order and Subchapter 15.

11. The discharger shall submit, by November 1, 1988, a revised closure plan for the site which will include, at a minimum, the following:

    a. a quality assurance/quality control program for construction of the final cover;

    b. proposed final grades;

    c. documentation of compliance with Specification B.9, B.10, and B.11, or a time schedule for achieving compliance;

    d. a detailed time schedule for closure of all portions of the landfill.

12. The discharger shall submit, by September 1, 1988, a report describing in detail the composting operation, including the volume of compost generated, and water use during operations.

13. The discharger shall file with the Board quarterly self-monitoring reports performed according to any self-monitoring program issued by the Executive Officer.

14. All reports prepared pursuant to these Provisions shall be prepared under the supervision of a registered civil engineer or certified engineering geologist.

15. The discharger shall remove and relocate any wastes which are discharged at this site in violation of these requirements.

16. The discharger shall file with this Board a report of any material change or proposed change in the character, location, or quantity of this waste discharge. For the purpose of these requirements, this

includes any proposed change in the boundaries of the disposal areas or the ownership of the site.

17. The discharger shall maintain a copy of this Order at the site so as to be available at all times to site operating personnel.

18. The Board considers the property owner and site operator to have continuing responsibility for correcting any problems which arise in the future as a result of this waste discharge or related operations.

19. The discharger shall maintain all devices or designed features installed in accordance with this Order such that they continue to operate as intended without interruption except as a result of failures which could not have been reasonably foreseen or prevented by the discharger.

20. The discharger shall permit the Board or its authorized representative, upon presentation of credentials:

    a. Entry upon the premises on which wastes are located or in which any required records are kept.

    b. Access to copy any records required to be kept under the terms and conditions of this Order.

    c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this Order.

    d. Sampling of any discharge or ground water covered by this Order.

21. This Board's Order No. 79-116 is hereby rescinded.

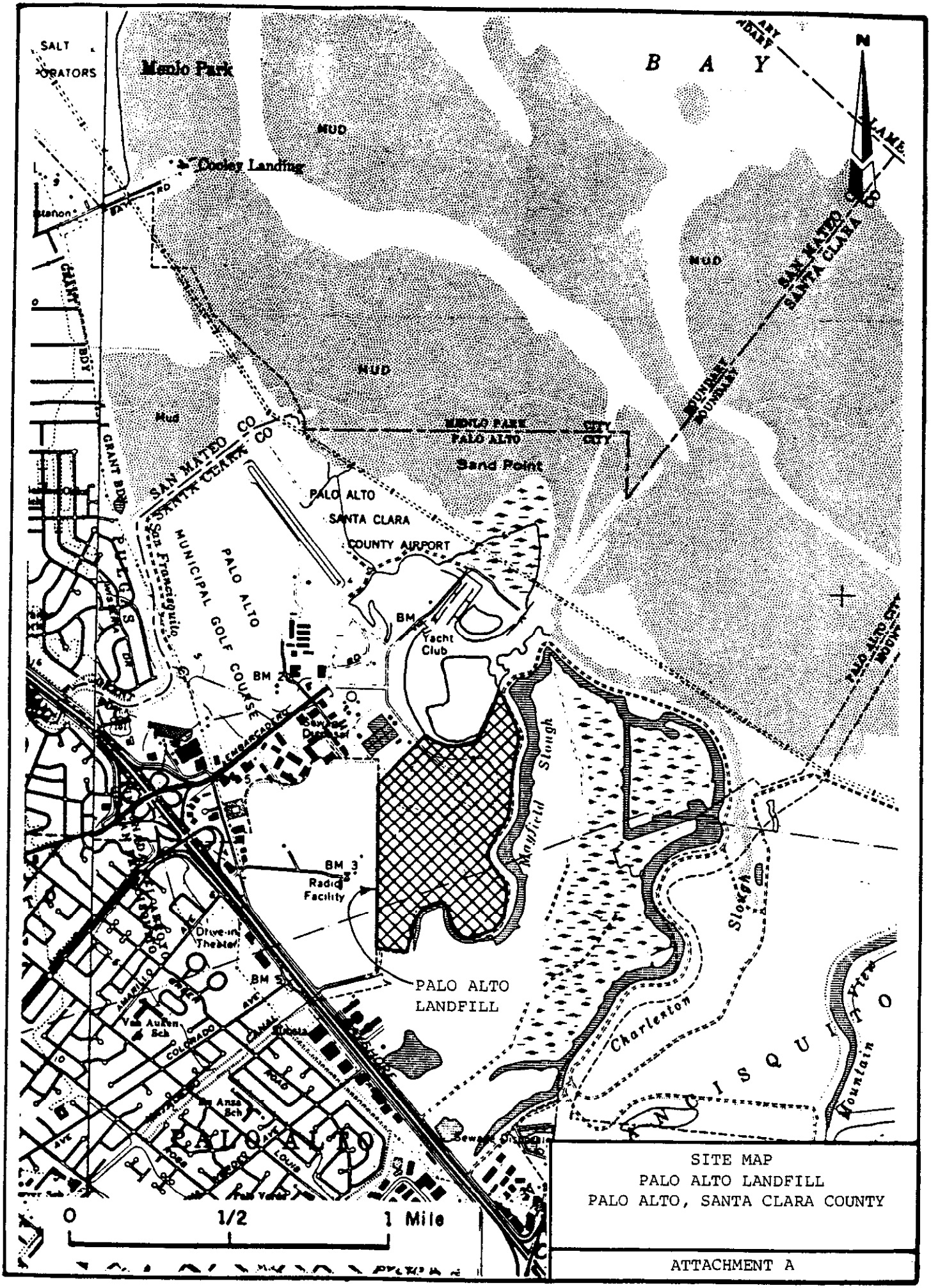
22. These requirements do not authorize commission of any act causing injury to the property of another or of the public; do not convey any property rights; do not remove liability under federal, state or local laws; and do not authorize the discharge of wastes without appropriate permits from other agencies or organizations.

23. This Order is subject to Board review and updating, as necessary, to comply with changing State or Federal laws, regulations, policies, or guidelines; changes in the Board's Basin Plan; or changes in the discharge characteristics, in five year increments from the effective date of this Order.

I, Roger B. James, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on March 16, 1988.

for
Roger B. James
Executive Officer

Attachments: A) Site map
B) Self Monitoring Program



SITE MAP
PALO ALTO LANDFILL
PALO ALTO, SANTA CLARA COUNTY

ATTACHMENT A

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

CITY OF PALO ALTO

PALO ALTO LANDFILL

PALO ALTO, SANTA CLARA COUNTY

ORDER NO. 88-038

CONSISTS OF

PART A

AND

PART B

PART A

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No.73-16. This Self-Monitoring Program is issued in accordance with Section C.13 of Regional Board Order No. 87-038.

The principal purposes of a self-monitoring program by a waste discharger are: (1) to document compliance with waste discharge requirements and prohibitions established by the Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent standards of performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sampling

Sample collection, storage, and analyses shall be performed according to most recent version of Standard Methods for the Analysis of Wastewater and in accordance with an approved sampling and analysis plan.

Water and waste analysis shall be performed by a laboratory approved for these analyses by the State Department of Health. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. DEFINITION OF TERMS

1. A grab sample is a discrete sample collected at any time.

2. A composite sample is a sample composed of individual grab samples mixed in proportions varying not more than plus or minus five percent from the instantaneous rate of waste flow corresponding to each grab sample collected at regular intervals not greater than one hour, or collected by the use of continuous automatic sampling devices capable of attaining the proportional accuracy stipulated above throughout the period of discharge or 24 consecutive hours, whichever is shorter.

3. Receiving waters refers to any water which actually or potentially receives surface or groundwaters which pass over, through, or under waste materials or contaminated soils. In this case the groundwater beneath and adjacent to the landfill, the surface runoff from the site, the drainage ditches surrounding the site, Mayfield Slough, Matadero Creek, and the former Palo Alto yacht harbor are considered the receiving waters.

j. Settleable Solids, ml/l/hr
k. Turbidity, NTU
1. EPA Method 601, identifying all peaks greater than 1 microgram/liter.

D. SCHEDULE OF SAMPLING, ANALYSIS, AND OBSERVATIONS

The discharger is required to perform sampling, analysis, and observations according to the schedule specified in Part B, and the requirements in Article 5 of Subchapter 15.

E. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the discharger, and shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board. Such records shall show the following for each sample:

1. Identity of sample and sample station number.

2. Date and time of sampling.

3. Date and time that analyses are started and completed, and name of the personnel performing the analyses.

4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used. A reference to a specific section of a reference required in Part A Section B is satisfactory.

5. Calculation of results.

6. Results of analyses, and detection limits for each analyses.

F. REPORTS TO BE FILED WITH THE BOARD

1. Written self-monitoring reports shall be filed by the 15th day of the month following the report period. In addition an annual report shall be filed as indicated in F.2. The reports shall be comprised of the following:

   a. Letter of Transmittal

      A letter transmitting the essential points in each self-monitoring report should accompany each report. Such a letter shall include a discussion of any requirement violations found during the last report period, and actions taken or planned for correcting the violations, such as, operation and/or facilities modifications. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the corespondence transmitting such schedule will be satisfactory. If

no violations have occurred in the last report period this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of vice president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

b. Each monitoring report shall include a compliance evaluation summary sheet. This sheet shall contain:

1) The sample mean and the sample variance for all sample sets taken from all compliance points, and shall determine if the difference between the mean of each sample set and the water quality protection standard is significant at the 0.05 level using Cochran's Approximation to the Behrens-Fisher Student's t-test as described in Appendix II of Subchapter 15. The discharger may propose an alternative statistical procedure to be used in making this determination pursuant to Section 2555(h)(3) of Subchapter 15. If a statistically significant difference is found this shall be reported as a suspected requirement violation in the letter of transmittal.

2) A graphic description of the velocity and direction of groundwater flow under/around the waste management unit, based upon the past and present water level elevations and pertinent visual observations.

3) The method and time of water level measurement, the type of pump used for purging, pump placement in the well; method of purging, pumping rate, equipment and methods used to monitor field pH, temperature, and conductivity during purging, calibration of the field equipment, results of the pH, temperature conductivity and turbidity testing, well recovery time, and method of disposing of the purge water.

4) Type of pump used, pump placement for sampling, a detailed description of the sampling procedure; number and description of equipment, field and travel blanks; number and description of duplicate samples; type of sample containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations; the chain of custody record.

c. A map or aerial photograph shall accompany each report showing observation and monitoring station locations.

d. Laboratory statements of results of analyses specified in Part B must be included in each report. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Board.

1) The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review.

2) In addition to the results of the analyses, laboratory quality control/quality assurance (QA/QC) information must be included in the monitoring report. The laboratory QA/QC information should include the method, equipment and analytical detection limits; the recovery rates; an explanation for any recovery rate that is less than 80%; the results of equipment and method blanks; the results of spiked and surrogote samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.

e. An evaluation of the effectiveness of the leachate monitoring/ control facilities.

f. A summary and certification of completion of all standard observations for the waste management unit, the perimeter of the waste management unit, and the receiving waters.

g. The quantity and types of wastes disposed of during the past quarter, and the locations of the disposal operations.

2. CONTINGENCY REPORTING

A. A report shall be made by telephone of any seepage from the disposal area immediately after it is discovered. A written report shall be filed with the Board within five days. This report shall contain the following information:

1) a map showing the location(s) of discharge;
2) approximate flow rate;
3) nature of effects; i.e. all pertinent observations and analyses; and
4) corrective measures underway or proposed.

B. A report shall be made in writing to the Board within seven days if a statistically significant difference is found between a self-monitoring sample set and a WQPS. Notification shall indicate what WQPS(s) have been exceeded. The discharger shall immediately resample at the compliance point(s) where this difference has been found and analyze another sample set of at least four portions split in the laboratory from the source sample.

C. If resampling and analysis confirms the earlier finding of a statistically significant difference between self-monitoring results and WQPS(s) the discharger must submit to the Board within 90 days an amended Report of Waste Discharge for establishment of a verification monitoring program meeting the requirements of Section 2557 of Subchapter 15. This submittal shall include the information required in Section 2556(b)(2) of Subchapter 15.

D. The discharger must notify the Board within seven days if the verification monitoring program finds a statistically significant difference between samples from the verification monitoring program point of compliance and the WQPS(s).

E. If such a difference or differences are found by the verification monitoring program, it will be concluded that the discharger is out of compliance with this Order. In this event the discharger shall submit within 180 days an amended Report of Waste Discharge requesting authorization to establish a corrective action program meeting the requirements of Section 2558 of Subchapter 15. This submittal shall include the information required in Section 2557(g)(3) of Subchapter 15.

3. By January 31 of each year the discharger shall submit an annual report to the Board covering the previous calendar year. This report shall contain:

   a. Tabular and graphical summaries of the monitoring data obtained during the previous year.

   b. A comprehensive discussion of the compliance record, and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the waste discharge requirements.

   c. A map showing the area, if any, in which filling has been completed during the previous calendar year.

   d. A written summary of the groundwater analyses indicating any change in the quality of the groundwater.

   e. An evaluation of the effectiveness of the leachate monitoring/ control facilities.

4. A boring log shall be submitted for each sampling well established for this monitoring program, as well as a report of inspection or certification that each well has been constructed in accordance with the construction standards of the Department of Water Resources. These shall be submitted within 30 days after well installation.

Part B

1. DESCRIPTION OF OBSERVATION STATIONS AND SCHEDULE OF OBSERVATIONS

A. WASTE MONITORING

1. Record the total volume and weight of refuse in cubic yards and tons disposed at the site during the month. Report this information quarterly.

2. Record the volume of fill completed, in cubic yards, showing locations and dimensions on a sketch or map. Report this information quarterly.

B. ON-SITE OBSERVATIONS

STATION	DESCRIPTION	OBSERVATIONS	FREQUENCY
V-1 thru V-'n'	Located on the waste disposal area as delineated by a 500 foot grid network.	Standard observations for the waste management unit.	Weekly
P-1 thru P-'n' (perimeter)	Located at equidistant intervals not exceeding 1000 feet around the perimeter of the waste management unit.	Standard observations for the perimeter.	Weekly

C. GROUND WATER MONITORING

STATION	DESCRIPTION	OBSERVATION	FREQUENCY
G-1 thru "G-n"	Ground water monitoring wells, as shown on the attached site map, including wells to be installed.	Standard analysis other than "j".	Once per quarter.

D. LEACHATE MONITORING

STATION	DESCRIPTION	OBSERVATION	FREQUENCY
GR-1 thru "GR-n"	Leachate control facilities, as shown on the attached site map, including sumps and wells to be installed	Depth of leachate built up at base of land-fill, and volume removed. Elevation of leachate above Mean Sea Level.	Once each week and at time of removal.

E. SEEPAGE MONITORING

STATION	DESCRIPTION	OBSERVATION/ ANALYSIS	FREQUENCY
S-1 thru S-'n' (seepage)	At any point(s) at which seepage is found occur-ring from the waste management unit.	Standard observations for the perimeter, and standard analysis other than "i".	Daily until remedial action is taken and seepage ceases.
R-001 (receiving waters, upstream)	Located in receiving waters 200 feet upstream from the upper-most point of seepage discharge(s).	Standard observation for receiving waters and standard analysis other than "i".	Daily, during a seepage event.
R-002 (receiving waters, downstream)	Located in receiving waters 200 feet downstream of seepage discharge(s).	Same as receiving waters upstream.	Daily during a seepage event.

I, Roger B. James, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in this Board's Order No. 87-038.

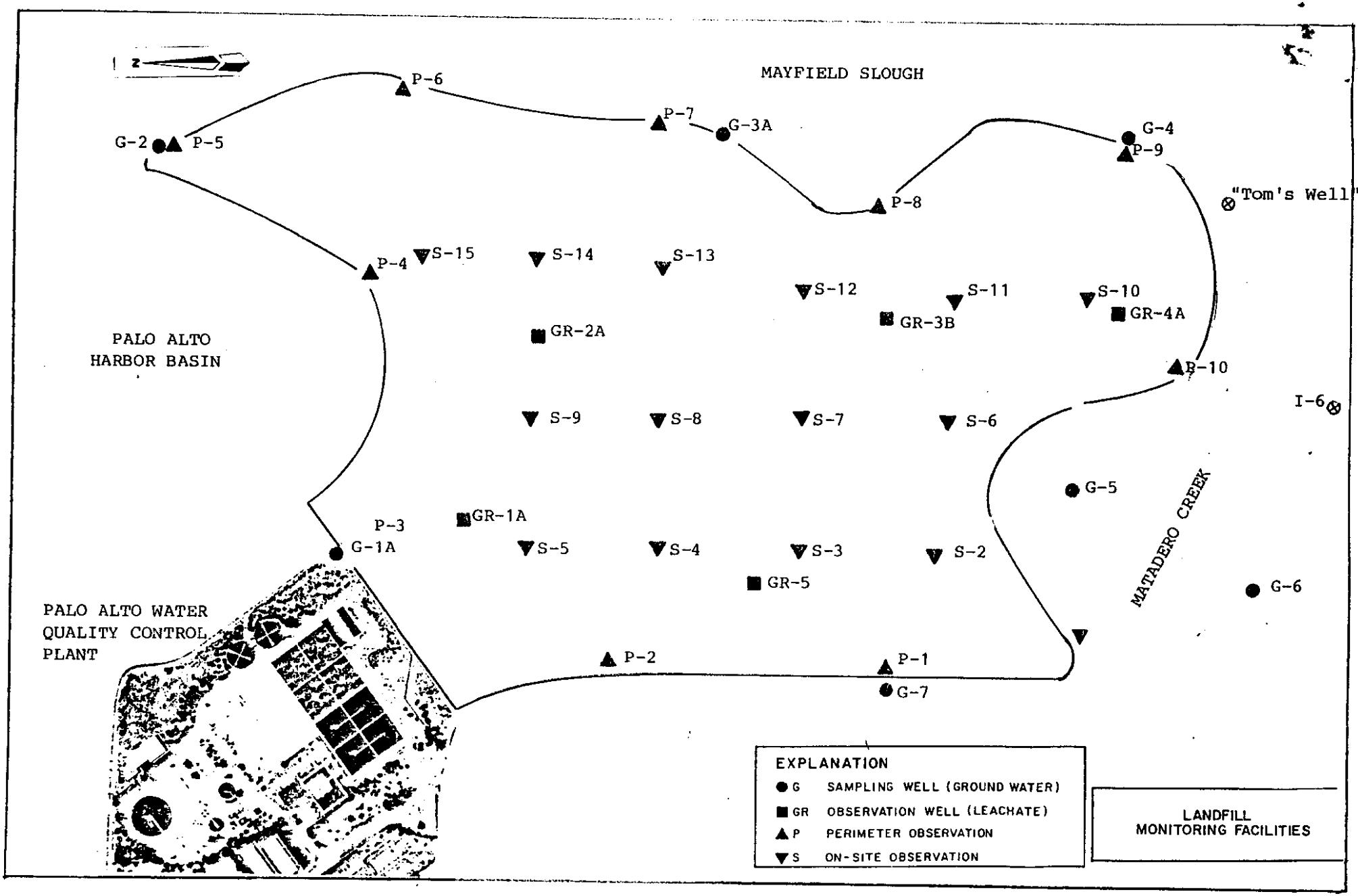
2. Is effective on the date shown below.

3. May be reviewed or modified at any time subsequent to the effective date, upon written notice from the Executive Officer, or request from the discharger.

for
Roger B. James
Executive Officer

March 16, 1988
Date Ordered

Attachment: Site Map


N
MAYFIELD SLOUGH
P-6
P-7
G-3A
G-2
P-5
G-4
P-9
P-8
"Tom's Well"
P-4
S-15
S-14
S-13
S-12
S-11
S-10
GR-3B
GR-4A
GR-2A
PALO ALTO
HARBOR BASIN
P-10
I-6
S-9
S-8
S-7
S-6
G-5
MATADERO CREEK
GR-1A
P-3
G-1A
S-5
S-4
S-3
S-2
GR-5
G-6
PALO ALTO WATER
QUALITY CONTROL
PLANT
P-2
P-1
G-7
EXPLANATION
G SAMPLING WELL (GROUND WATER)
GR OBSERVATION WELL (LEACHATE)
P PERIMETER OBSERVATION
S ON-SITE OBSERVATION
LANDFILL
MONITORING FACILITIES